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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/671,086

09/25/2003

Charles W. Alvord

2003P88063 US

6320

28524 7590 12/24/2009

SIEMENS CORPORATION
INTELLECTUAL PROPERTY DEPARTMENT
170 WOOD AVENUE SOUTH
ISELIN, NJ 08830

EXAMINER

GREENE, DANIEL LAWSON

ART UNIT

PAPER NUMBER

3694

MAIL DATE

DELIVERY MODE

12/24/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/671,086

Applicant(s)

ALVORD ET AL.

Examiner

DANIEL L. GREENE JR.

Art Unit

3694

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 December 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 37-49 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 37-49 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/CDC)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date _____

DETAILED ACTION

1. Applicant's suspension has terminated and no subsequent request has been received. Accordingly an action on the merits of pending Claims 37-49 follows.
2. It is noted that the Board affirmed the Examiners previous 35 USC 103 rejection in the decision rendered 11/25/2008.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. **Claims 37-49 are rejected under 35 U.S.C. 103(a) as obvious over APA in view of any of Alvord, Fujiwara et al. Schlyer et al., Amini and further in view of Satyamurthy (all references already of record) for the reasons set forth in the 9/21/2007 Examiners Answer.**

APA discloses applicant's invention as explained in previous Office actions. See for example the Examiners answer dated 9/21/2007, the 1/4/2007 Office action, etc.

Applicant is of the opinion that APA does not disclose cooling fluid channel conduits formed within said target body. Any of the references above can be relied upon to show it is clearly known to those of ordinary skill in the art to utilize internal cooling channels to cool whatever portion of the target body needs cooling to ensure it doesn't overheat, warp, etc.

At the time of the invention it would have been obvious to one of ordinary skill to locate the cooling channels of APA internally within said target body for the benefits

thereof, i.e. localized cooling, etc. as taught to be notoriously old and well known by the references above.

Regarding claims 39 and 45, APA discloses applicant proposed invention substantially as claimed and described above, however APA does not expressly disclose that the target body is fabricated out of tantalum.

Satyamurthy et al. disclose that there has been more than two decades of ongoing development of cyclotron target bodies for the production of the ^{18}F fluoride ion and discusses the benefits and drawbacks of various materials in the fabrication of said target bodies. Satyamurthy et al. further teaches that the rationale for the choice of tantalum is its relatively low activation by protons and its general chemical inertness and it has a higher thermal conductivity than titanium (another typical target body material)

At the time of applicant's invention, it would have been obvious to one of ordinary skill in the art to fabricate the target body of APA out of tantalum for the benefits of relatively low activation by protons and its general chemical inertness as such is no more than functionally equivalent material.

Further basic thermodynamic principles of engineering can be relied upon to show that when you replace a material that has a high thermal conductivity with a material that has a low thermal conductivity, some method must be employed to account for the change in heat transfer. Accordingly extra or additional or rerouting of the cooling system must be employed.

Accordingly, it would have been obvious to move the cooling channels from the exterior of the target body to the interior in order to move the cooling system closer to the area where the heat is being produced.

Again, upon review of the Figures it is apparent that applicant has merely changed the material of construction to Tantalum (which the Examiner has shown is known in the art) and moved the cooling channels internally to compensate for the lower thermal conductivity of the new material of construction (which is considered to be no more than a basic thermodynamic engineering principle well known in the art as shown by any of the references above).

3.) Further, resort may be had to case law wherein it is OBVIOUS to integrate the cooling channels to the inside of the target body and it is further OBVIOUS to duplicate the cooling channels as such is nothing more than a duplication of parts performing the SAME FUNCTION, i.e. cooling.

See, for examples, In re Wolfe, 116 USPQ 443, 444 (CCPA 1961)), In re Larson, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965), In re Harza, 124 USPQ 378 (CCPA 1960) "Mere duplication of parts has no patentable significance unless new and unexpected result is produced"

In this case, only additional cooling would be the result, which IS NOT UNEXPECTED.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL L. GREENE JR. whose telephone number is (571)272-6876. The examiner can normally be reached on Mon-Thur.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James P. Trammell can be reached on (571) 272-6712. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

6. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/D. L. G./
Examiner, Art Unit 3694
2009-12-19

/James P Trammell/
Supervisory Patent Examiner, Art Unit 3694